Concierge™ 2x6
SWITCH CORE

CE

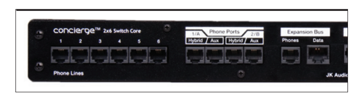
User Guide Version 5/3/12

JK Audio, Inc.
1311 E 6th St.
Sandwich, IL 60548
United States
Telephone: 815.786.2929
Toll Free: 1.800.jkaudio
Fax: 815.786.8502
www.jkaudio.com

JK Audio



Concierge™ 2x6
SWITCH CORE



User Guide

JK Audio

Thank You

Thank you for purchasing the JK Audio Concierge 2x6 Switch Core. Please read this guide for instructions on setting up and using your new product.

Getting Assistance

If you have technical or application questions:
In the US & Canada, call us toll free at: **800-552-8346**
All other countries dial: **815-786-2929** (M-F 8:30-5:00pm Central Time Zone)
Email us at: support@jkaudio.com
Or, check out our FAQ section for answers to common questions.

Limited Warranty

Concierge 2x6 is covered by a 2 year warranty to be free from defective workmanship and materials. To obtain service, contact JK Audio by phone or email for return authorization. Once authorized, you will carefully pack and ship the faulty product and all accessories to us. You will pay for shipping to us and we will pay for return back to you.

This warranty does not cover damages due to accident, weather, fire, flood, earthquake, misuse, unauthorized repairs or modifications, or damages occurred in shipping, only defective workmanship or materials.

THERE ARE NO EXPRESSED OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTY HERE MADE.

FCC Part 15 Compliance

This device complies with Part 15, Subpart B of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by JK Audio can void the user's authority to operate the equipment.

FCC Registration

Your new JK Audio product has been registered with the Federal Communications Commission (FCC). This product complies with the standards in Part 68 of the FCC rules.

1. **Connection And Use With The Nationwide Telephone Network**
   The FCC requires that you connect this telephone equipment to the national telephone network through a USOC RJ-11C modular telephone jack. This equipment may not be used with Party Line Service or Coin Telephone Lines. This equipment is hearing aid compatible.
2. **Information For The Telephone Company**
   Upon request from your local telephone company, you are required to provide the following information: a) The "line" to which you will connect the telephone equipment (that is, your telephone number), and b) The telephone equipment's FCC registration number. This can be found on the bottom of your telephone equipment, and, c) The ringer equivalence number (REN) for this equipment. The REN is used to determine the quantity of devices which will be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed 5.0. To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the local telephone company.
3. **Repair Instructions**
   If it is determined that your telephone equipment is malfunctioning, the FCC requires that it not be used and that it be unplugged from the modular outlet until the problem has been corrected. Repairs to this telephone equipment can only be made by the manufacturer or its authorized agents or by others who may be authorized by the FCC. For repair procedures, follow the instructions outlined under the warranty section of the manual.
4. **Rights Of The Telephone Company**
   If telephone equipment is causing harm to the network, the telephone company may temporarily discontinue your telephone service. If possible, they'll notify you before they interrupt service. If advanced notice isn't practical, you'll be notified as soon as possible. You'll be given the opportunity to correct the problem, and you'll be informed of your right to file a complaint with the FCC. Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your JK Audio product. If such changes are planned, you'll be notified by your telephone company.

Declaration of Conformity

Manufacturer's Name	JK Audio, Inc.
Manufacturer's Address	1311 E 6th Street Sandwich, Illinois 60548 USA

Declares that the product:

Product Name	Concierge™ 2x6 Switch Core
Model Numbers	CON2X6

Conforms to the following Product Specifications:

Safety:	AS/NZS 60950.1:2011 EN 60595-1:2006/A11:2009/A1:2010 UL Standard 60950-1 2nd edition
ESD:	EN 55024:1998 EN 61000-3-2 EN 61000-3-3
Emissions:	EN 55022:1998 AS/NZS CISPR 22 (2002) FCC Part 15, Subpart B ICES-003
Telecom	AS/CA S002:2011 FCC CFR 47, Part 68 TIA-968-B, TIA-1096-A

Supplementary Information:
The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:

LVD 2006/95/EC (Safety)
R&TTE 1999/5/EC (Telecom)
EMC 89/336/EEC (EMC)
RoHS Directive 2002/95/EC

The Technical File containing supporting documentation is maintained at:

JK Audio, Inc (Corporate Headquarters)
Compliance Manager
1311 E 6th Street
Sandwich, Illinois 60548 USA
815-897-2929 phone
815-786-8502 fax



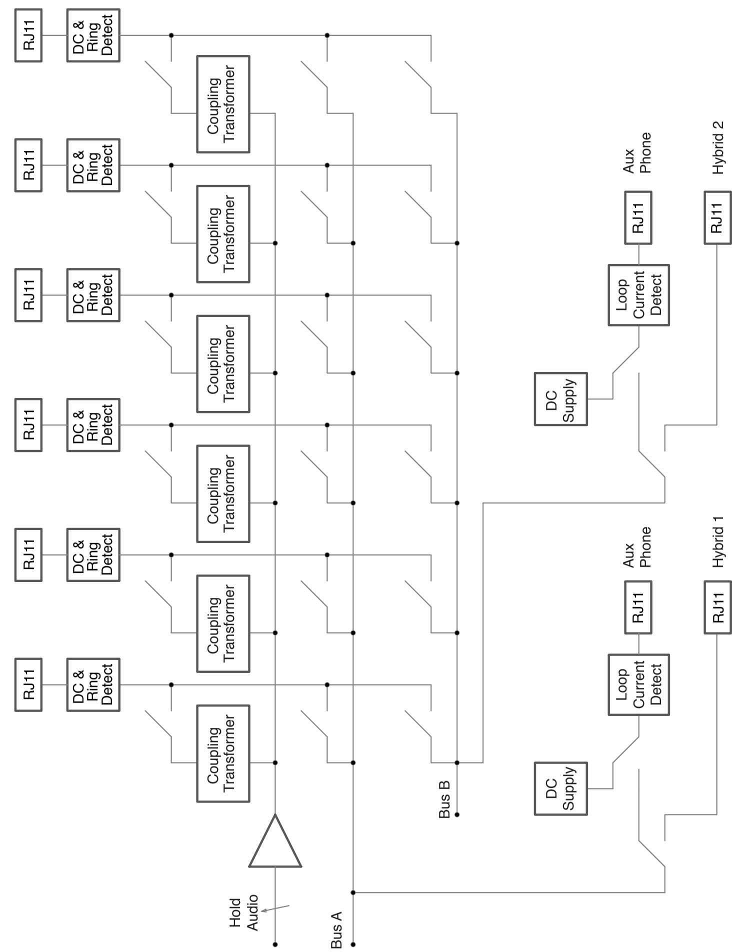
Product Registration / Firmware Updates

Your Concierge system contains many advanced features, but we are constantly looking for ways to improve. Product Registration allows us to keep you informed of any firmware updates that become available in the future. Concierge allows program updates through the USB port, using simple programming instructions.

Please register your purchase by sending an email to:

support@jkaudio.com

Subject: Product Registration
Be sure to include your serial number, name, email address and mailing address.



Technical Information

Phone Lines (6)

Connector	RJ-11C
Isolation	1500 VAC
Ringer	0.5B REN

Hold Audio Line Input

Connection	3.5mm mono
Impedence	20k ohms
Level	(-10 dBu) nom.

USB

Connector	Type B
Standard	v2.0

Power

Power	120-240 VAC, 50-60 Hz, 25 Watts max
Connector	IEC320-C14

Dimensions

Size	1.75” x 7.3” x 19” (4.5 x 18.6 x 48.3 cm)
Weight	5.4 pounds (2.4 kg)

Overview

Introducing the Concierge™ 2x6

6 Phone Line jacks	LED Line Status Indicators
2 Hybrid Connections	Front panel DIP Switches
Hold Audio Input	Auto-Ring & Auto-Drop Controls
Expandable to 2 x 12 Lines	

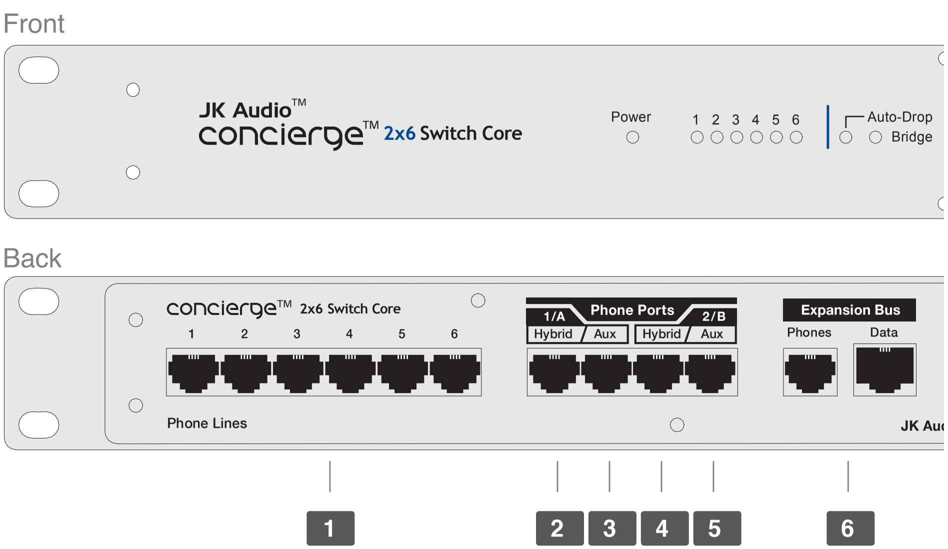
The Concierge™ 2x6 switch core allows connection of two hybrids across six phone lines. The switch matrix routes six incoming analog phone lines to either one or two JK Audio innkeeper 1rx™ single channel Digital Hybrids, or one innkeeper 2™ Digital Hybrid. A firmware upgrade is all that is required to make most older model INN 1x/INN 1rx and INN 2 hybrids compatible with this new system. See page 11 for innkeeper compatibility.

Concierge adds music on hold input, auxiliary phone integration, and intuitive call control. The end result is a powerful, flexible system featuring excellent call screening capabilities, while allowing two studios to share the phone lines.

Two Concierge switch cores can be bridged together, providing six additional phones lines for a 2 hybrid, 12 line system.

Up to eight Guest Module control surfaces can be added to provide remote control of the switch matrix over CAT5 cable. Guest Modules are hot swappable without losing calls, and feature line selection buttons that change color to indicate call status. Guest Modules are available in GM1x6, GM2x6, and GM1x12 desktop and rack mount versions.

The smallest system consists of one Concierge switch core, one innkeeper 1rx, and one Guest Module GM1x6 control surface.



Line LEDs

Each phone line port features dedicated ring detect, line current detect, polarity reversal detect, line presence, and hold circuit. Front panel LEDs indicate various line states. A green Line LED indicates the line is off-hook and properly wired, while a red Line LED indicates the line is off-hook but reverse wired. In most cases, reverse wiring will not affect system operation. The only exception is during innkeeper 1x/1rx conferencing, where both lines are electrically bridged together. Two lines of different polarity cannot be joined in a conference. It is advised to go through each line to ensure a properly wired connection.

The Concierge front panel Line LEDs indicate when a phone line is taken off-hook through the Concierge system. These LEDs do not indicate when a phone line is already off-hook outside the system, or if the line is disconnected or out of service.

Innkeeper Compatibility

Concierge communicates with the innkeeper 1x,/1rx, or innkeeper 2 Digital Hybrid over a serial data port. Some early innkeeper models may require a firmware upgrade to become compatible. Contact support@jkaudio.com for a firmware upgrade.

Model	Serial Number		Status
innkeeper 1x	Before	IN1X01336	ⓧ Not compatible
	Between	IN1X01336 - IN1X02185	⚠ Requires firmware update
	After	IN1X02185	✓ Compatible
innkeeper 1rx	Before	IN1RX01936	ⓧ Not compatible
	Between	IN1RX01936 - IN1RX02748	⚠ Requires firmware update
	After	IN1RX02748	✓ Compatible
innkeeper 2	Before	IN201729	⚠ Requires firmware update
	After	IN201728	✓ Compatible

Phone Line Compatibility

Concierge works with standard POTS (Plain Old Telephone Service), PSTN (Public Switched Telephone Network) phone lines. The phone line ports have been tested and approved for most international POTS/PSTN line conditions, ring patterns, voltages and frequencies, as well as call disconnect signaling. Concierge also works on most analog line ports from PBX or VoIP phone systems, however these systems are not required to adhere to the specifications of the POTS/PSTN network. PBX/VoIP analog line ports may need additional settings adjustments through your system administrator or installer.

Auto-Drop

Most PBX phone systems (and talk shows systems for that matter) are built on the premise that when you are done talking to one person, and you select a different line, the first caller automatically gets disconnected. In other words, you have to go through an extra step to place a call on hold. While this has the distinct advantage of allowing you to get through calls quickly, you are also more likely to accidentally lose a call. With Concierge, you have a choice:

- When Auto-Drop is ***ON***, calls are automatically dropped after selecting a different line, or using the Next and Previous buttons, unless you specifically put a call on hold.
- When Auto-Drop is ***OFF***, calls are automatically put on hold after selecting a different line, or using the Next and Previous buttons.

ATTENTION: Auto-Drop is *OFF* by default, it can be Enabled/Disabled by using the DIP switch panel (see page 9).

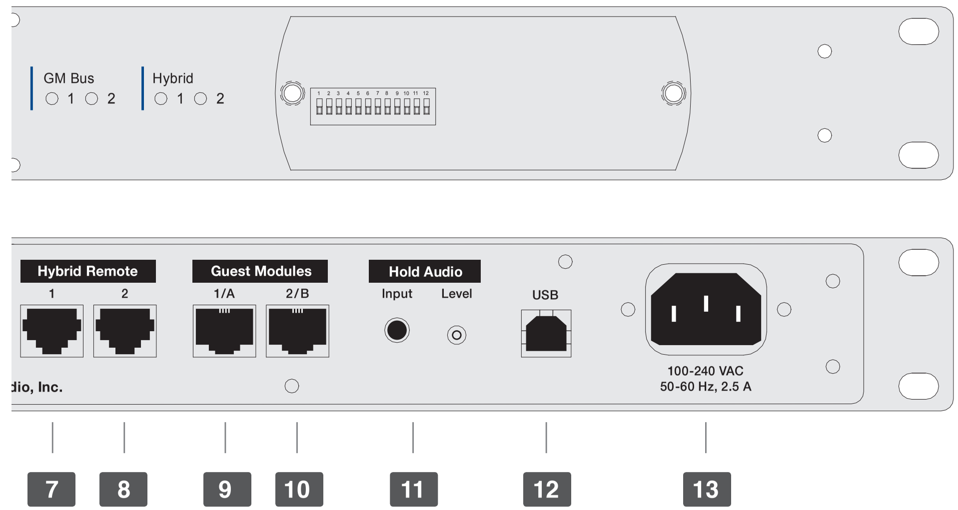
Aux Phone Control

The use of a conventional telephone for call screening and dialing can be an important part of any system. Concierge Aux Phone jacks provide seamless call control, allowing the phone to become an integral part of the system.

The Aux Phone takes precedence over the hybrid, similar to picking up the handset during a speakerphone call. Picking up the handset of a phone connected to an Aux Phone jack during a call, will disconnect the Hybrid and connect the Aux phone to the phone line. This is true in all cases except when using an INN2 in Conference mode, when nothing will happen until one of the two phone lines is selected.

The Aux Phone will follow these basic rules:

- If a phone connected to the Aux jack is off-hook before a line select button is pressed, the line will be connected to the phone instead of the hybrid.
- If a call is routed to the hybrid and the phone is taken off-hook, the phone will take control of the call.
- If the Aux Phone is not present, or on-hook, pressing a line select button will connect that line to the hybrid.
- If the Aux Phone is connected to a port where no hybrid is connected, and the phone is on-hook, pressing a line button does nothing.
- If auxiliary phones are part of your system, they should be connected to the 1/A or 2/B Phone Ports for proper system integration. Do not use external line splitters to connect an Aux phone to any other port. Do not connect an Aux phone directly to the innkeeper digital hybrid.



Ports & Cable Types

1	6 Phone Line Jacks	RJ-11C
2	Row-A Phone Line to Hybrid 1	RJ-11C
3	Row-A Auxiliary Phone	RJ-11C
4	Row-B Phone Line to Hybrid 2	RJ-11C
5	Row-B Auxiliary Phone	RJ-11C
6	Expansion Bus to Second Concierge	RJ-11C / RJ-45 flat cable
7	Hybrid Remote 1	RJ-50 flat cable
8	Hybrid Remote 2	RJ-50 flat cable
9	Row-A Guest Module Bus	RJ-45 CAT5
10	Row-B Guest Module Bus	RJ-45 CAT5
11	Hold Audio Input	3.5 mm
12	USB Control Port	USB Type B
13	100-240 VAC Input	

Installation Options

The Concierge system is very flexible, offering many configuration options. The number and type of hybrids and Guest Module control surfaces help determine the system capabilities. It is best to look at your requirements first, then choose the right hybrids and controllers suitable for your unique installation.

The first decision is whether you intend to conference two callers together, putting both calls on the air simultaneously. This can be accomplished with a low cost innkeeper 1x/1rx by allowing the system to combine two calls together into one audio input on your console. Keep in mind that you will not be able to adjust the level of the caller's voices independently if one caller should prove quieter than the other. Innkeeper 2 uses two separate digital hybrids to bring caller audio into separate inputs on your console, while providing the necessary cross-connections so everybody can hear each other.

If conferencing is not in your game plan, you may wish to keep it simple using GM1x6 controllers. GM1x6 offers all the features of the GM2x6 without the possible confusion of monitoring the second half of the 2x6 switch core, which may not be a part of your installation.

Whether conferencing is in you plans or not, you might want to consider a mix of GM1x6 and GM2x6 control surfaces depending on the location. A news studio or call screener may not need conferencing, and may be better served by the simpler GM1x6 control surface.

The following examples show the capabilities of each hybrid:
One innkeeper 1x/1rx™ Hybrid: pg 5
Two innkeeper 1x/1rx™ Hybrids: pg 6
One innkeeper 2™ Hybrid: pg 7

Dip Switches

The Concierge™ 2x6 Switch Core is equipped with 12 slide style DIP switches located underneath the removeable cover plate on the front. Configure your Concierge by enabling or disabling features by switching between the ***ON*** and ***OFF*** positions for each DIP switch. The following chart shows each feature and it's corresponding switch.

1	Auto-Ring 0	7	Reserved
2	Auto-Ring 1	8	Reserved
3	Auto-Ring 2	9	Reserved
4	Auto-Drop	10	Guest Module Programming Mode
5	Slave	11	Switch Core Programming Mode
6	Reserved	12	Accessory Enable (name TBD)

1-3 Auto Ring (Default = 1 Ring)

The Auto-Ring DIP switches select the Auto Answer Ring Count whenever the Auto Answer function is enabled. The Ring Count number is controlled by a combination of the three Auto-Ring switches.

Ring Count	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Auto-Ring 0	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Auto-Ring 1	OFF	OFF	ON	ON	OFF	OFF	ON	ON
Auto-Ring 2	OFF	OFF	OFF	OFF	ON	ON	ON	ON

4 Auto-Drop

OFF (Default)**:** Places the current call on Hold when either a Line button, Next, or Previous button is pressed.

ON: Will drop the current call when either a Line button, Next or Previous button is pressed, unless the call is manually placed on Hold.

5 Slave

For 12-line systems:

OFF (Default): In the 'Off' position, the Concierge behaves as the master device, controlling the first 6 lines.

ON: When bridging two Concierge Switch Cores, use the Expansion bus to create a 12-Line system. Flip the Slave DIP switch to the 'On' position to convert Lines 1-6 to Lines 7-12 on the second Concierge Switch Core.

Step 1: Phone Line Wiring

Connect each phone line directly to the RJ-11 jacks on the back of the Concierge. Auxiliary phones should be connected to the 1/A or 2/B Phone Ports for proper system integration. Do not use external line splitters to connect an Aux phone. Do not connect an Aux phone to the innkeeper digital hybrid.

Step 2: Hybrid Connection

Two cables join each hybrid to the Concierge Switch Core. An RJ11 Modular phone cord connects the innkeeper Phone Line jack to the Concierge 1/A or 2/B Hybrid Phone Port. The remote data cable connects the innkeeper remote jack to the Concierge Hybrid Remote jack.

Step 3: Guest Module Control Surfaces

A maximum of four guest modules can be connected to each of the two Guest Module ports, for a system maximum of eight Guest Modules. The dual connection ports on each Guest Module allow for quick daisy-chain wiring, or you may simply run all cables back to a terminal block to allow for point-to-point wiring. The maximum distance from Concierge to the farthest Guest Module is a function of the number of Guest Modules connected, as well as the the gauge of the wire chosen. Standard 26 gauge cable can be used on runs shorter than 100 feet, but as distance and the number of units increase, you may need to consider 24 gauge CAT5 wire.

While Guest Modules use standard CAT5 cable, the communications protocol is balanced differential RS-485 using a custom pinout. This is not an Ethernet connection, and should not be connected to a data hub or switch.

2x12 Expansion

Two Concierge switch cores can be bridged together into a 2x12 system, providing six additional phone lines. Begin with both Concierge Switch Cores powered down. On the second Concierge, DIP switch 5 must be set to the ON position, shifting line assignment to lines 7-12. Now connect the phone and data expansion bus cables from the first unit to the second unit. Upon power-up, both units will display a green “Bridge” LED indicating that they are now properly communicating. Only GM1x12 control surfaces can be connected to a bridged system. The GM1x12 control surfaces can be connected to either the 1/A or 2/B control bus on the Master (1-6) Concierge Switch Core. All hybrid and Guest Modules connections are made through the Master Concierge unit. Only the Phone Line and Expansion Bus jacks are used on the Slave Concierge unit.

One innkeeper 1x/1rx™ Hybrid

The smallest system consists of a one line hybrid and at least one GM1x6 or GM2x6 control surface. This is the most common system assembled when there is only one studio and one optional screener position.

One innkeeper connects to the Hybrid 1/A jacks on the Concierge, as does at least one Guest Module. Any GM1x6 or GM2x6 controllers connected to bus 1/A will display calls on row A of the Guest Module. A second GM1x6 or GM2x6 control surface can be connected to Guest Module control bus 2/B along with an Auxiliary phone connected to Aux Phone Port 2/B to provide an independent call screening position. Any GM2x6 controllers connected to bus 2/B will display calls routed to the Aux phone on row B of the Guest Module. A GM1x6 connected to bus 2/B will display these same calls shifted up to its top row.

One Studio: 1 Hybrid, 6 Lines



Studio+Screener: 1 Hybrid, 6 Lines



Two innkeeper 1x/1rx™ Hybrids

This is a typical configuration if two studios share the same six phone lines. With two single line hybrids, one will get connected to port 1/A and one to port 2/B. Any GM1x6 or GM2x6 controllers connected to bus 1/A will display calls on row A of the Guest Module. Any GM2x6 controllers connected to bus 2/B will display calls on row B of the Guest Module. A GM1x6 connected to bus 2/B will display these same calls shifted up to its top row.

Two separate single line hybrids allow one two-caller conference on row A with one audio output, and a separate two-caller conference on row B with a separate audio output. These conferences cannot be combined. Any lines routed to hybrid 1 cannot be accessed by hybrid 2, and vice versa.

Two Studios: 2 Hybrids, 6 Lines



Installation Options

One innkeeper 2™ Hybrid

While one innkeeper 2 hybrid can function as two separate hybrids as in the previous scenario, conferencing was designed primarily for a one studio application. The innkeeper 2 hybrid connects to the 1/A hybrid port. The innkeeper 2 brings row A and row B callers into the console on separate audio channels, allowing independent level control even during conferencing.

Bus A can be used for the studio Guest Modules. Bus B can be used for a call screener, allowing the screener access to the second hybrid channel or second aux phone port for call screening while the studio airs calls on Bus A.

Keep in mind that when Conference is selected, both Bus A and Bus B are joined together in a conference, and the screener no longer has the ability to screen calls.

One innkeeper 2™ Hybrid with Two Concierge Switches

This system can be expanded to 12 lines by simply adding a second Concierge™ 2x6 switch.

2 Hybrids, 6 Lines



2 Hybrids, 12 Lines

